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THE ROYAL  
LONDON OPHTHALMIC HOSPITAL.

BY  
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LONDON, ENGLAND.

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THE

## Royal London Ophthalmic Hospital.

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Having decided to spend one year abroad in the special study of the eye, and wishing to make every moment count to the best advantage, the question arose, Where should I go? Most students of the eye spend six months in Paris and Vienna, and the remaining time in London. Undoubtedly Paris and Vienna do offer great advantages to the student in acquiring a thorough groundwork of the subject, and those who are conversant with French and German should unquestionably avail themselves of the facilities which these cities afford. But those who only understand English make a great mistake when they spend valuable time battling with a foreign tongue. For, after all, it is clinical experience that counts, and in this respect the Royal London Ophthalmic Hospital, better known as "Moorfields," stands pre-eminently the greatest eye hospital in the world.

So I came to "Moorfields," and my choice is confirmed, by noticing that the students who come to London after a six months' stay in Vienna are mixed as to their knowledge of

German, and probably a little more so as to the eye.

"Moorfields" is an unpretentious three-story brick building, which stands in the very heart of London, about five minutes' walk from the Bank of England. The ground floor is entirely devoted to the out-door department. The operating-room and wards are up-stairs, and have accommodations for nearly one hundred patients.

In the report for 1891, the in-patients numbered 1892 ; out-patients, 25,558 ; with a total attendance of out-patients, 109,756. To examine and treat this vast multitude, three surgeons are on duty each day from 9.30 A.M. till 2 P.M. Messrs. Nettleship, Gunn, and Lawford serve on Wednesdays and Saturdays ; Messrs. Cowper, Tweedy, and Morton, Tuesdays and Fridays ; and Messrs. Tay, Lang, and Silcock, on Mondays and Thursdays.

Any physician or surgeon may become a student at the hospital for six months on payment of \$15.75, or a fee of \$26.25 entitles him to the perpetual privileges of the institution. From these students each surgeon appoints a number of clinical and junior assistants, usually about ten. These appointments are made in May and November, the clinical assistants serving for a term of not less than one year and the juniors for six months.

The assistants are not limited to serving under any one surgeon ; and, in fact, if you make yourself useful, you find no difficulty in being appointed by three men, and so working every day in the week. There is plenty of work to do, and the staff is only

too pleased to have active and reliable men as aids. It doesn't do to resent treating cases of granular lids, nor to sneer at cases of refraction until a pretty girl comes along ; but he who pitches in, takes every case as it comes, soon receives the notice of his chief, and has his reward in being given the important cases.

You early find that you have to rely upon your own resources, as the surgeon is busy with his new cases and cannot be annoyed by half a dozen men seeking his advice on simple cases of refraction, etc. At the same time the staff is exceedingly kind, and willingly clear up any doubtful point.

The patients are drawn to "Moorfields" from all parts of the United Kingdom, and begin to arrive as early as 8 A.M., and continue to come, in increasing numbers, until ten o'clock, when the doors are closed.

Each new patient is given a "letter" by the clerk, which records his name, age, occupation, and address, as well as the name of the surgeon at whose hands he is to receive treatment. All the records of the case are made upon this letter, and the patient is directed to carefully preserve it and bring it at all subsequent visits.

The senior assistants arrive at about nine o'clock, examine the old patients and continue the treatment. At half-past nine the surgeons usually put in an appearance, and from that time until two in the afternoon the scene is a busy one. The porter arranges the patients into six lines, three of old and three of new, and one by one they file up to their respective desks.

As each new patient reaches the desk, he hands his letter to the surgeon, who examines the eye, makes the diagnosis, and orders treatment. Cases for refraction or the ophthalmoscope are sent into the waiting-room behind, where they receive the attention of the assistants.

At a little distance in the rear of the desks are six complete sets of trial lenses, two for the use of each surgeon.

Usually there are ten to fifteen assistants busy with the refraction cases, so that across the room stretches a line of patients, all anxious to read  $\frac{6}{6}$ , and an equal number of doctors aiding them to the best of their abilities.

Back of the trial cases, the large examining-room is subdivided into three smaller rooms, so that the patients of each surgeon can be kept separate. These rooms are always crowded, and as the test-cards hang against the far wall, it is often a difficult task to keep a clear view for refractive purposes.

When I first came to "Moorfields," I was as much confused by the bustle and activity as is one who pays a first visit to a stock exchange and witnesses the activity of the brokers.

It had always been my custom, in refraction cases, to have my patient comfortably seated in a chair, with an unobstructed view of the test-cards; but here was a line of people extending from one side of the room to the other, all standing, the refracted craning their necks to read the test-type, and the refractors turning about every minute to see that they had a clear track.

Although there is so much apparent confu-



sion, each case receives a routine and thorough examination. The distant vision is taken, and any manifest ametropia recorded in the following manner: R.V.  $\frac{6}{6}$  H.m. sph. + 1.50 D =  $\frac{6}{6}$ . The accommodation is taken with Jaeger's test-type, and recorded J1 15 to 45 centimetres.

If a satisfactory result is not attained, atropine or homatropine is ordered. In the case of children, guttæ atropine, 2 grains to 1 ounce, or unguentum atropine, 4 grains to 1 ounce, is ordered three times a day, and patient told to report in three days or a week. Older patients have a few drops of homatropine, 4 grains to 1 ounce, or homatropine and cocaine in castor oil instilled under the lids, and examined as soon as the accommodation is paralyzed. The surgeons at "Moorfields" do not hesitate to use homatropine in old people, provided the tension of the eyeball is normal. The cases are now taken into the dark room for retinoscopy and ophthalmoscopic examination. The dark room is quite large, and well ventilated from above. It is divided into nine stalls, three for the use of each surgeon.

There are two unwritten laws in force at "Moorfields,"—

1. Do not appropriate your neighbor's trial-frames.

2. Keep to your own stalls in the dark room.

Retinoscopy is a very favorite method of estimating refraction, for after a little practice the most difficult cases of astigmatism may be correctly estimated in a few moments. The following method, taken from Morton's "Refraction of the Eye," is in force:

"First, as to the mirror; it is well to have

a good sized one, as the shadows are clearer and more easily studied. My mirror is concave, four centimetres in diameter, with a central perforation of four millimetres, and has a focus of twenty-two centimetres."

The remarks which follow apply to a concave mirror: "The observer must always be seated at the same distance from the patient,—viz., about one to four metres."

The accommodation being paralyzed by homatropine or atropine, a screen should be placed over one eye, and the patient should look at the sight-hole in the mirror.

The situation of the principal meridians should then be roughly ascertained, and the degree of refraction tested with glasses. It is more convenient to test each meridian separately, and with spherical glasses only in the first instance.

If the shadow move against the mirror, or if, with a bright reflex, there is no definite shadow movement, we have a case of emmetropia, hypermetropia, or weak myopia.

If the shadow appear to move with the mirror, the eye is myopic, at least one dioptré.

To ascertain the actual refraction while the eye is still under atropine: *Deduct*  $+ 1 D$  (a) from the *weakest convex* glass, which *reverses* the shadow, if it originally moved against the mirror. (b) From the *strongest concave* glass with which the shadow *continues* to move *with* the mirror, if it originally had this direction.

The feebler the luminous reflex and the slower the movement of the shadow across the pupillary area, the greater is the amount of ametropia.

Glasses ordered for permanent use must, when *convex*, be 1 D, or occasionally 1.50 D, *weaker*; and when *concave*, .25 D to .75 D *stronger* than is indicated by the measurements made under atropine. In myopia, however, this addition is seldom required.

With spherico-cylinders, any modification necessary may almost invariably be effected by means of the spherical lens alone. In all estimations of errors of refraction, atropine or homatropine is absolutely necessary if perfect accuracy be sought for.

After retinoscopy, the eye is examined by focal illumination, and any foreign body, or delicate opacities of the cornea or vitreous, noted. A convex lens of 3 D is now turned behind the ophthalmoscope, so that the surgeon may not use any accommodation, and the details of the fundus studied by the indirect method. The lens used to focus the rays is + 16 D, and is much larger than those usually used in the States; the diameter of mine is six centimetres.

By the direct method, the cornea and lens are examined for fine opacities through a convex lens of 20 D. The state of the vitreous is observed through a convex lens of 8 D, and finally the fundus is studied and the refraction estimated.

The Morton ophthalmoscope is the one most in favor. The lenses are attached to an endless chain, and run down through the body of the instrument, and by means of the wheel at the bottom the lenses can be turned into place without removing the ophthalmoscope from the eye. The operator has command of convex lenses from .5 to 32

D, and concave lenses up to 50 D. The small, slanting mirror is two centimetres in diameter, with a central perforation two millimetres in diameter, and turns upon itself to any angle. For the indirect examination, the large mirror can be rotated to occupy the place of the small mirror. Its diameter is three centimetres, with a perforation of three millimetres.

The treatment of diseases of the eye may be outlined as follows:

*Simple cases of conjunctivitis* are ordered a lotion of boric acid or alum, an ointment of boric acid or vaseline, with cold compresses applied for twenty minutes three or four times a day.

*Follicular conjunctivitis* receive one of the above lotions, with drops of sulphate of copper, and an occasional application of weak solution of silver nitrate.

*Chronic granular ophthalmia* is of very frequent occurrence among the poor of London, and often defies the best of treatment. Mild cases are treated at the hospital with a brushing of silver nitrate, five to ten grains to the ounce, with soothing lotion, and ointment of the yellow oxide. More chronic cases receive an application of mitigated lapis or lapis divinus, with cold sponging. When the granulations are large, numerous, and intractable, the lids are everted, powdered cocaine applied, and the granulations either squeezed out between the blades of a pair of strong, curved forceps or removed by the actual cautery.

*Phlyctenular conjunctivitis* is best treated with an ointment of yellow oxide and warm fomentations of boracic acid.

*Phlyctenules of the cornea* receive the above treatment with the addition of eserine or atropine. Eserine is most employed, and atropine is only ordered when the ulceration is central, with a tendency to perforate. When the ulceration is small but deep, paracentesis of the anterior chamber, through the floor of the ulcer, assists most materially in the cure. When the ulcer is spreading, or if there is hypopion, it is cauterized with the galvanocautery, taking care to get well into the sound tissue. Cocaine is added to the drops or ointment to control pain, and a pressure bandage ordered. The mild cases only require a shade or dark-colored spectacles.

In the local treatment of *iritis*, atropine and warm applications still remain the prominent features.

*Disorders of the Lachrymal Apparatus.*—The favorite method of treatment is to dilate the puncta with a Nettleship dilator, and pass one of Bowman's probes into the nasal duct. After the stricture is dilated, the duct is washed out with Anel's syringe, using a solution of either perchloride, zinc, alum, or boracic acid. At subsequent visits (twice a week) the duct is syringed, and if the fluid does not pass into the nose, the duct is probed. This method is very successful, and at the same time does not injure the puncta or canaliculus.

During the course of the morning the surgeons, in turn, go up-stairs to the "theatre," examine the in-patients, and perform any necessary operations. The theatre is about fifteen by twenty feet, and is well lighted by one large window. At either side of the operating-table stands a small platform, for the

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 use of students and visitors. The room is in charge of the house surgeon, assistant, and two nurses. The first administers the anæsthetic and assists the surgeon; the second selects the various instruments necessary for the operation and places them into a tray filled with a solution of carbolic acid, 1 to 20. The eye to be operated upon is thoroughly irrigated with perchloride solution, 1 to 5000, and cocaine, ten per cent. solution, instilled. The blood and other discharges are removed with dry sal alembroth wool. After the operation, the eye receives a dry dressing of cyanide of mercury and zinc gauze, and a roller bandage applied. X

During the year 1891 three hundred and twenty-eight senile cataracts were extracted. Of this number, two hundred and twenty-four were removed with iridectomy, seventy-three without and thirty-one with a preliminary iridectomy. Messrs. Nettleship, Lang, and Lawford prefer extraction without iridectomy in favorable cases, doing a subsequent iridectomy when a prolapse of the iris occurs. By referring to the table, it will be noticed that the number of iridectomies necessitated by prolapse of the iris bears a striking resemblance to the number of extractions without iridectomy. Of course, allowance must be made for prolapse from other causes. The majority of the surgeons still prefer the safer, though less brilliant, method. Dr. Marcus Gunn makes it a rule to do a preliminary iridectomy, and claims the minimum amount of danger to the eye.

## PHARMACOPŒIA.

*Fomentum Acidi Borici.*

Boric acid, ℥vi to aquæ, Oi.

*Guttæ—Drops.*

Nitrate of silver, gr. i, ii to ℥i.  
 Sulphate of atropine, gr. i, ii, iv to ℥i.  
 Sulphate of atropine, gr. ii } to ℥i.  
 Hydrochlorate of cocaine, gr. x }  
 Sulphate of copper, gr. ii to ℥i.  
 Sulphate of daturine, gr. ii to ℥i.  
 Sulphate of duboisine, gr. i to ℥i.  
 Homatropine, gr. iv to ℥i.  
 Hyoscine, gr. ii to ℥i.  
 Eserine, gr. ii, iv to ℥i.  
 Eserine, gr. i } to ℥i.  
 Cocaine, gr. v }  
 Nitrate of pilocarpine, gr. ii to ℥i.  
 Sulphate of zinc, gr. ii to ℥i.  
 Chloride of zinc, gr. ii } to ℥i.  
 Cocaine, gr. x }

*Lotiones—Lotions.*

Boric acid, gr. xix to ℥i.  
 Alum pulv., gr. vi to ℥i.  
 Alum, gr. iii } to ℥i.  
 Sulphate of zinc, gr. i }  
 Glycerin of borax, ℥i to ℥i.  
 Perchloride of mercury, gr. ⅛ to ℥i.  
 Bicarbonate of sodium, gr. x to ℥i.  
 Chloride of zinc, gr. i to ℥i.  
 Sulphate of zinc, gr. i to ℥i.

*Oleum Homatropinæ cum Cocaine.*

Homatropine, pure.  
 Cocaine, alkaloid, aa gr. x.  
 Castor oil, ℥i.

*Unguenta—Ointments.*

Powdered boric acid, ℥i; soft paraffin, ℥i.  
 Atropine, alkaloid, gr. iv; soft paraffin, ℥i.  
 Atropine, gr. iv } soft paraffin, ℥i.  
 Powdered boric acid, ℥i }



Atropine, gr. iv } soft paraffin,  $\overline{3}$ i.  
 Cocaine, gr. x }

Yellow oxide of mercury, gr. iv to gr. viii; soft paraffin,  $\overline{3}$ i.

Yellow oxide, gr. iv } soft paraffin,  $\overline{3}$ i.  
 Atropine, gr. ii }

Ointment of nitrate of mercury, 1 part; soft paraffin, 7 parts.

Precipitated iodoform, 1 part; soft paraffin, 7 parts.

Precipitated iodoform,  $\overline{3}$ i } to  $\overline{3}$ i.  
 Atropine, gr. ii }





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